Evidence for foliar uptake of sulfated laminarin into grapevine depending on surfactant use and leaf surface

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Promoting an evolutionary approach of herbicide resistance.

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Resistance rapidly and continuously evolves in weed populations undergoing herbicide selective pressure, so that the long-term outcome of herbicide selection remains unpredictable. Most published herbicide resistance studies focussed on the resistance mechanisms, with diagnosis as an applied aim. While elucidating resistance genetic bases is a prerequisite to understand and predict resistance evolution, resistance studies should go beyond the mere description of mechanisms. This means implementing an evolutionary approach of resistance by investigating the probability of appearance or initial frequency of resistance genes, the genetic architecture of resistance, resistance spread and the associated pleiotropic effects (e.g., fitness cost) of resistance mechanisms. This data is necessary to design integrated weed management strategies reducing herbicide resistance risk or enabling resistance management *via* integrative modelling efforts. Yet, the evolutionary dynamics of herbicide resistance has rarely been fully addressed considering all these aspects. This talks aims at promoting interest for integrative evolutionary approaches of herbicide resistance. The main parameters driving herbicide resistance evolution in weeds and their respective importance in resistance evolution will be reviewed, taking into account weed biological particularities and using comparison with the other major pest classes (fungi and insects) to highlight particularities in herbicide resistance evolution.